IN THE CLAIMS:

1. A method of self-monitoring the operation of a proximity sensor comprising at least a transmitter, a receiver, and a first and second lightguide, including the steps of:

producing a beam in the transmitter;

transmitting the beam into a first lightguide;

splitting the beam into a first beam and a second beam, within the first lightguide;

transmitting the second beam into the second lightguide;

directing the second beam towards the receiver; and

receiving and analyzing the second beam by the receiver to determine the operation of the proximity sensor.

2. A method according to claim 1, wherein:

the step of receiving and analyzing is executed by detecting the second beam by the receiver.

3. A method according to claim 1, wherein:

the lightguides are made in one piece.

4. A lightguide system for the use with a proximity sensor comprising:

a first lightguide which directs a first beam into a first prefined direction;

a second lightguide which directs a reflection of the first beam into a second predefined direction;

a beam splitter within the first lightguide which splits an incident beam into a first and a second beam; and

a beam directing device directs the second beam from the first device which directs second beam into the second predefined direction.

5. A lightguide system according to claim 4, wherein:
the beam splitter is a light directing device.

6. A lightguide system according to claim 4, wherein:
the directing devices are arranged to direct the second beam from the first lightguide to the second lightguide via surfaces which also direct the first beam.

7. A lightguide system according to claim 4 wherein:
the directing devices are arranged so that the second beam is directed from the first lightguide to the second lightguide via surfaces which did not direct the first beam.

8. A lightguide system according to claim 4, wherein:
the lightguides are made in one piece.

9. Proximity sensor, comprising:
a transmitter comprising a first lightguide which directs a first beam into a first predefined direction;
a receiver;
a lightguide system used with the receiver;
a second lightsource which directs a reflection of the first beam into a second prefined direction;
a beam splitter within the first lightguide which splits an incident beam into a first and a second beam; and
a beam directing device which directs the second beam from the first lightguide into the second lightguide; and wherein
the second lightguide comprises a directing device which directs the second beam into the second predefined direction.

10. A device including a proximity sensor comprising:
a transmitter comprising a first lightguide which directs a first beam into a first predefined direction; a receiver;

11. A device according to claim 11, wherein:
a transmitter comprising a first lightguide which directs a first beam into a first predefined direction;
a receiver;
a lightguide system used with the receiver;
a second lightsource which directs a reflection of the first beam into a second prefined direction;
a beam splitter within the first lightguide which splits an incident beam into a first and a second beam; and
a beam directing device which directs the second beam from the first lightguide into the second lightguide; and wherein
the second lightguide comprises a directing device which directs the second beam into the second predefined direction.

12. A lightguide system according to claim 5, wherein:
the directing devices are arranged so that the second beam is directed from the first lightguide to the second lightguide via surfaces which did not direct the first beam.

13. A lightguide system according to claim 5, wherein:
the directing devices are arranged to direct the seond beam from the first lightguide to the second lightguide via surfaces which also direct the first beam.

14. A lightguide system according to claim 5, wherein:

the directing devices are arranged so that the second beam is directed from the first lightguide to the second lightguide via surfaces which did not direct the first beam.

15. A lightguide system according to claim 13, wherein:

the directing devices are arranged so that the second beam is directed from the first lightguide to the second lightguide via surfaces which did not direct the first beam.